

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 8/10/2015 (Developing El Nino Condition)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method¹, the SFWMD empirical method², a sub-sampling of El Nino years³ and a sub-sampling of cold years of the Atlantic Multi-decadal Oscillation (AMO) in combination with ENSO El Nino years⁴. The results for Croley's method and the SFWMD empirical method are based on the [CPC Outlook](#).

Table of the Lake Okeechobee Net Inflow Outlooks in feet of equivalent depth. All methods are updated on a weekly basis with observed net inflow for the current month.

Season	Croley's Method ^{1*}		SFWMD Empirical Method ²		Sub-sampling of ENSO El Nino Years ³		Sub-sampling of AMO Warm + ENSO El Nino Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Aug-Jan)	N/A	N/A	2.20	Very Wet	2.55	Very Wet	1.57	Wet
Multi Seasonal (Aug-Apr)	N/A	N/A	2.43	Normal	3.49	Wet	2.22	Normal

*Croley's Method Not Produced For This Report

See [Seasonal](#) and [Multi-Seasonal](#) tables for the classification of Lake Okeechobee Outlooks.

The recommended methods and values for estimating the Lake Okeechobee Net Inflow Outlook are shaded and should be used in the LORS2008 Release Guidance Flow Charts.

[Tributary Hydrologic Conditions Graph:](#)

2040 cfs 14-day running average for Lake Okeechobee Net Inflow through 8/10/2015. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

-0.95 for Palmer Index on 8/9/2015.

According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

The wetter of the two conditions above is **Normal**.

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 8/10/2015

Lake Okeechobee Stage: **12.27 feet**

[USACE Report for Lake Okeechobee](#)

[Lake Okeechobee Stage Hydrograph](#)

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.33	
Operational Band	High sub-band	15.91	
	Intermediate sub-band	15.49	
	Low sub-band	13.65	
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.93	← 12.27
Water Shortage Management Band			

[Part C of LORS2008: Discharge to WCA's](#)

Release Guidance Flow Chart Outcome: No Releases to the WCAs

[Part D of LORS2008: Discharge to Tidewater](#)

Release Guidance Flow Chart Outcome: No Releases to the Estuaries

Technical Input Summaries from:

- **[Lake Okeechobee Division](#)**
- **[Coastal Ecosystems](#)**
- **[Everglades Ecosystems Division](#)**
- **[Water Supply Department](#)**
- **[Water Resource Management Release Recommendation](#)**
- **[Kissimmee Watershed Environmental Conditions](#)**
- **[Operations Department](#)**

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LORS2008 Implementation on 8/10/2015 (ENSO Neutral Condition):

Water Supply Department Technical Input

Water Supply Outlook:

District wide, Raindar rainfall 0.65 inches for the week ending 8/10/2015. Lake stage on 8/10/2015 is 12.27 ft, up 0.02 ft from last week.

The updated August 2015 SFWMM Dynamic Position Analysis [percentile graph](#) and [tracking chart](#) for Lake Okeechobee show that the lake stage is in the Beneficial Use Operational Sub-Band.

The LORS2008 tributary [indices](#) are classified as **Normal**. The PDSI indicates normal condition and the LONIN is Normal. The classification is based on the wetter of the two.

Water Supply Risk Evaluation

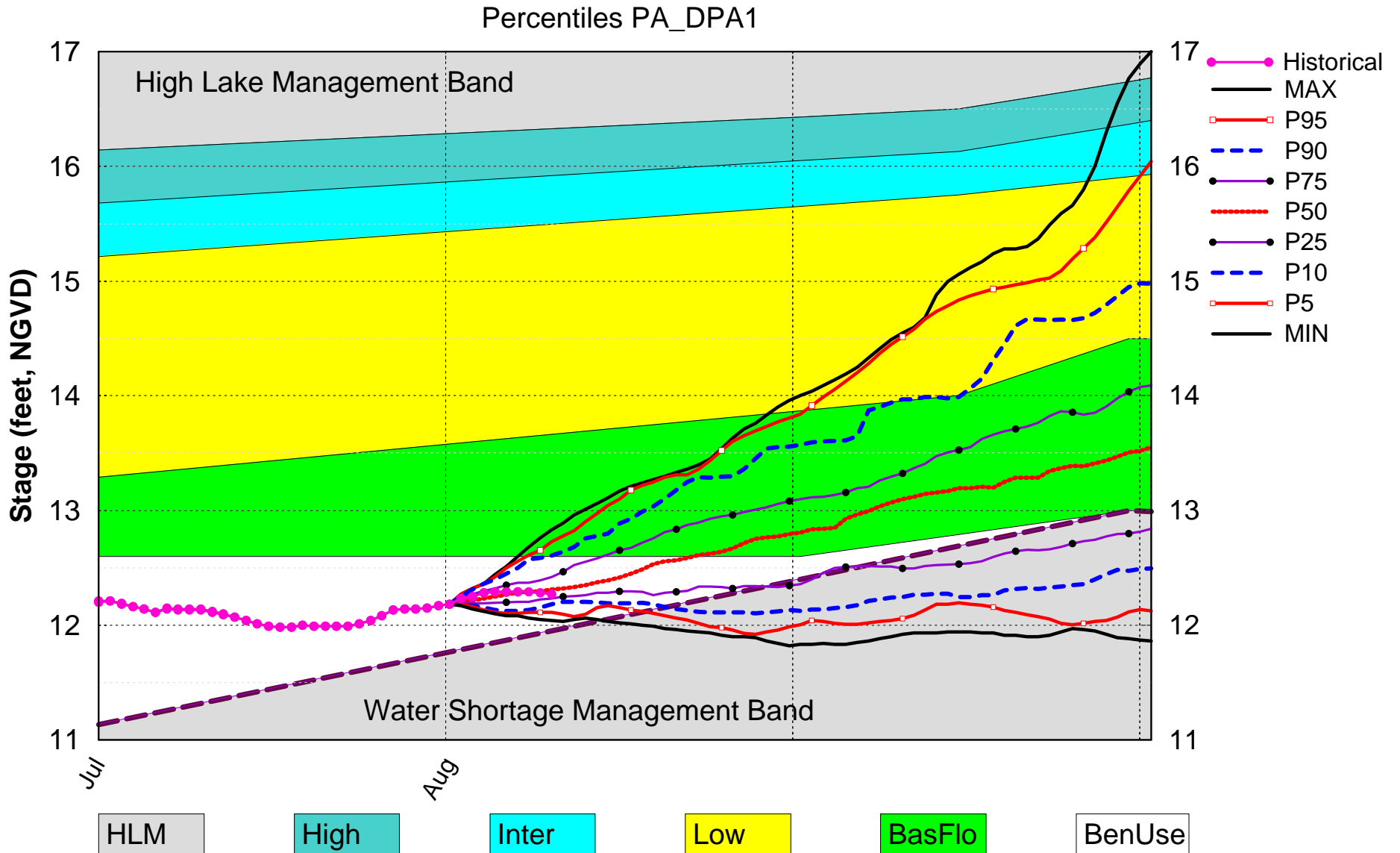
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Base Flow Sub-Band	M
	Palmer Index for LOK Tributary Conditions	-0.95 (Normal)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Forecast	2.55 ft (Normal to Extremely Wet)	L
	AMO warm/El Nino		
	LOK Multi-Seasonal Net Inflow Forecast	3.49 ft (Wet)	L
AMO warm/El Nino			
WCAs	WCA 1: Site 1-8C	Above Line 1 (15.51 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (11.89 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Between Line 1 & 2 (8.66 ft)	M
LEC	Service Area 1	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and not more than 25% are in the lowest 10% of past water elevations	M
	Service Area 2	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and more than 25% are in the lowest 10% of past water elevations	H
	Service Area 3	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and more than 25% are in the lowest 10% of past water elevations	H

Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow forecasts use slightly different classification intervals than those used by the 2008-LORS for classifying the tributary hydrologic condition (THC).

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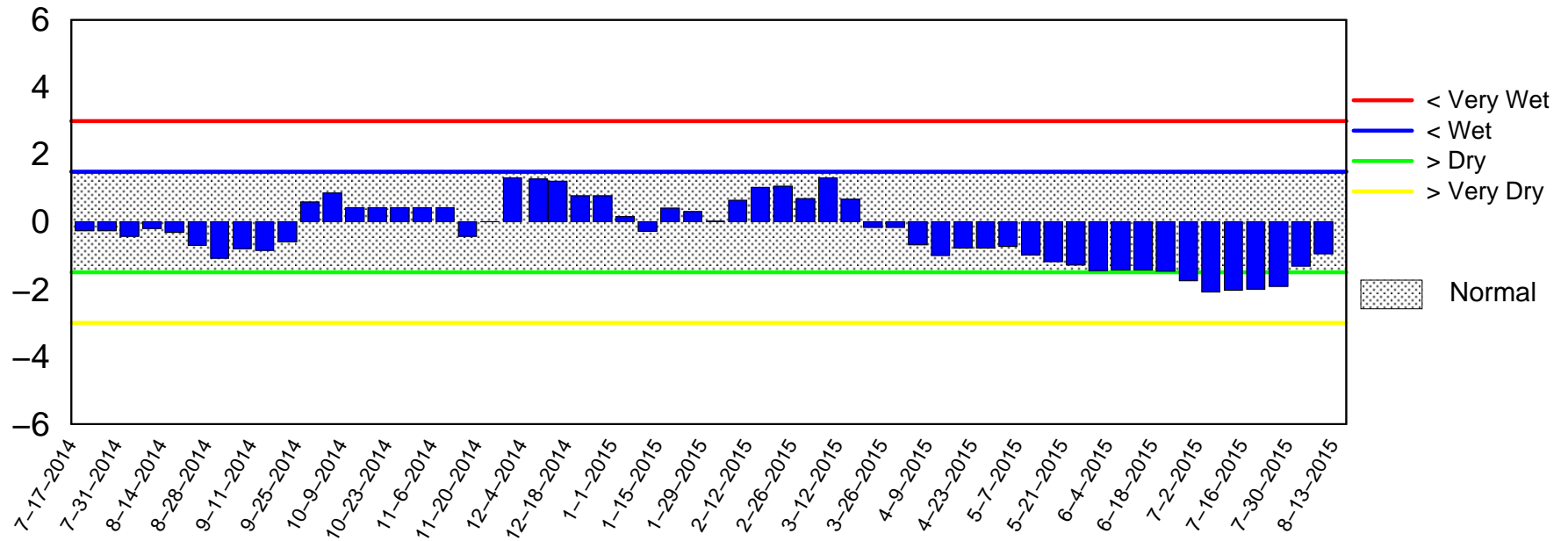
Lake Okeechobee SFWMM August 2015 Dynamic Position Analysis



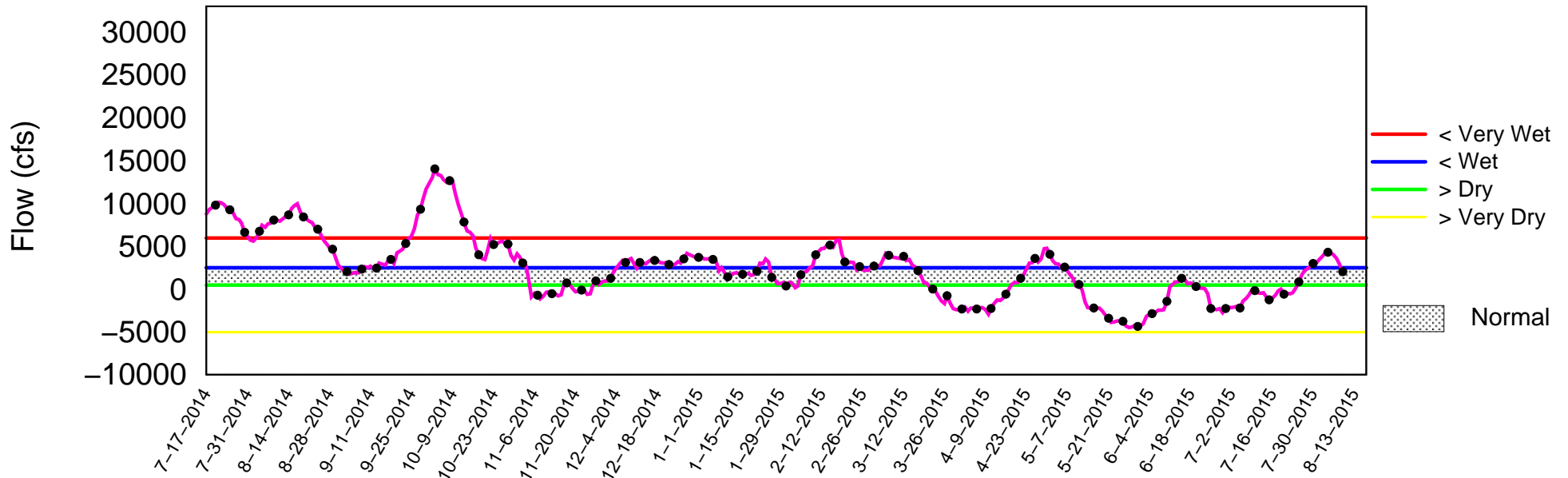
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of August 10 2015

Palmer Index



Lake Okeechobee Net Inflow (LONIN) 14-day Running Average



Mon Aug 10 14:26:57 EDT 2015

2008 LORS

Part C: Establish Allowable Lake Okeechobee Releases to the Water Conservation Areas

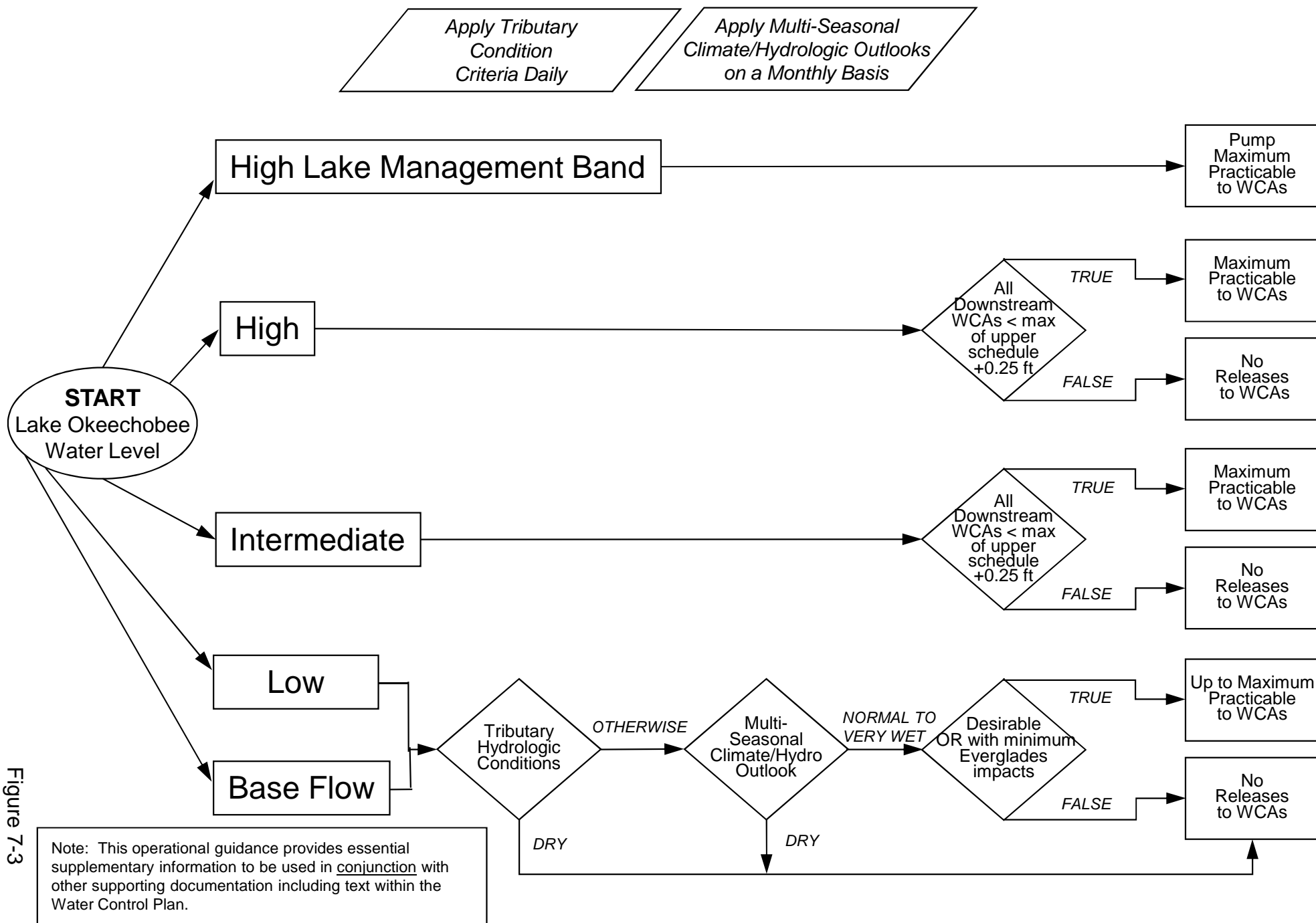


Figure 7-3

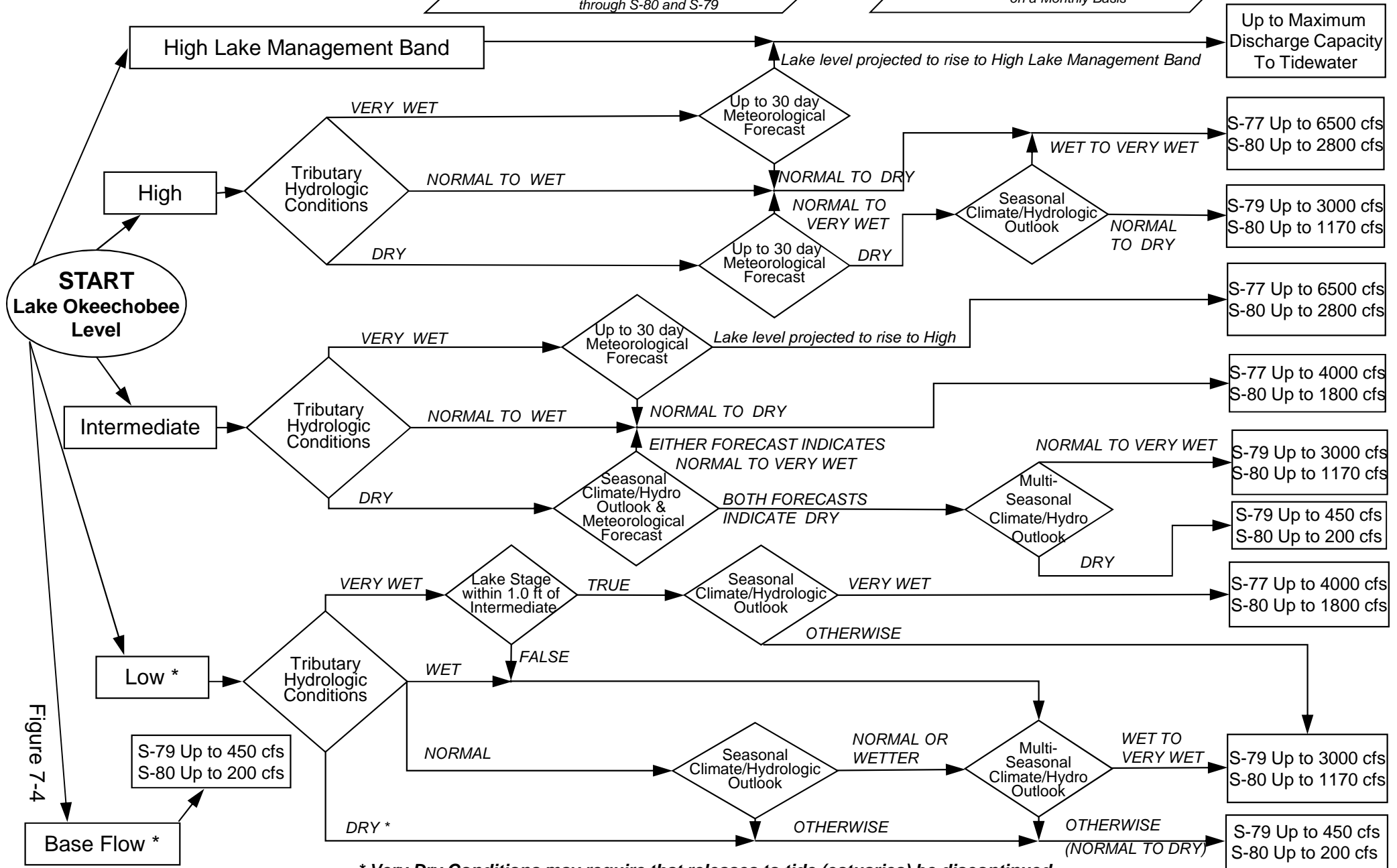
2008 LORS

Part D: Establish Allowable Lake Okeechobee Releases to Tide (Estuaries)

Note: This operational guidance provides essential supplementary information to be used in conjunction with other supporting documentation including text within the Water Control Plan.

When conducting Base Flow releases, flows can be distributed East and West up to 650 cfs as needed to minimize impacts or provide benefits through S-80 and S-79

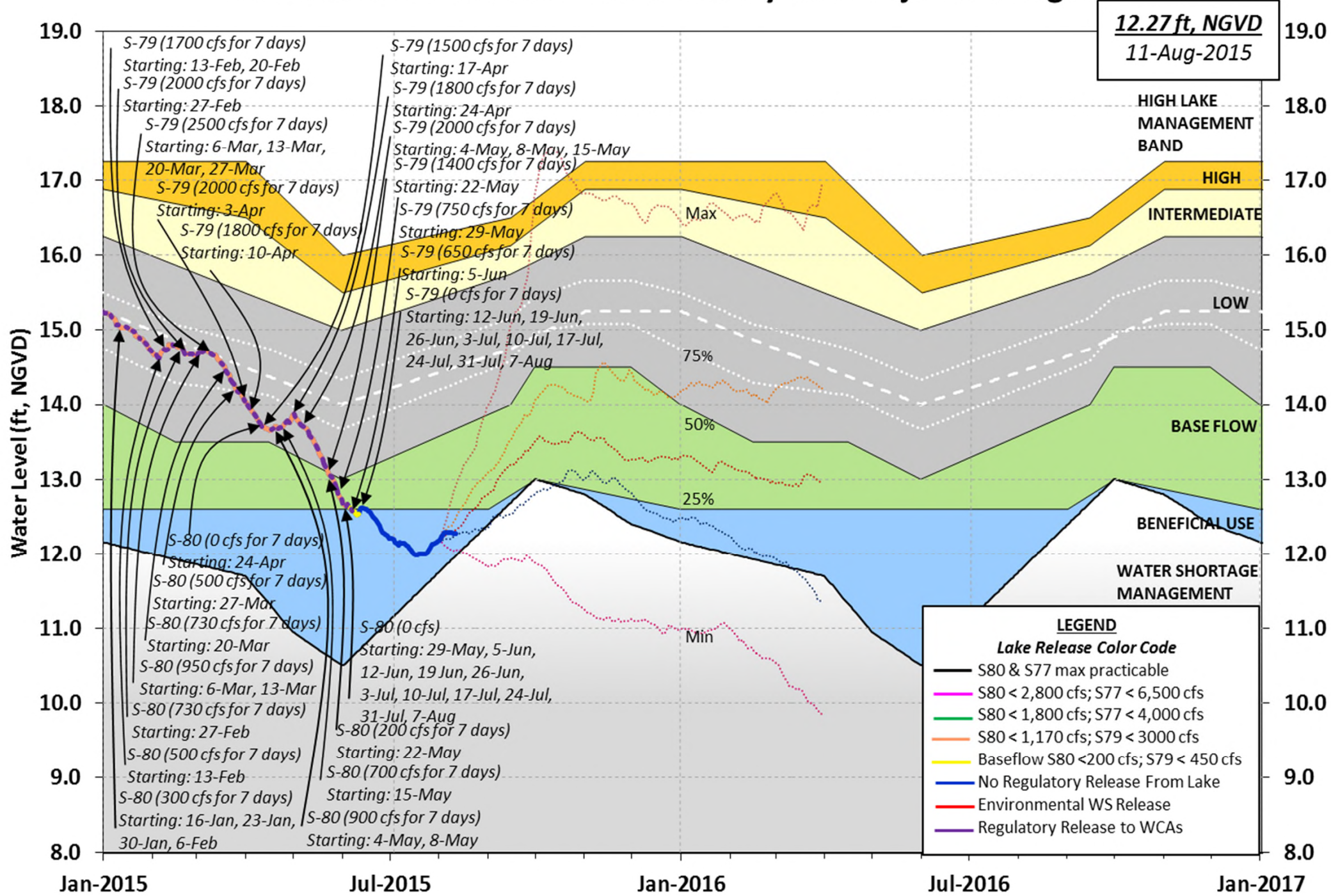
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



* Very Dry Conditions may require that releases to tide (estuaries) be discontinued

Figure 7-4

Lake Okeechobee Water Level History and Projected Stages



U. S. Army Corps of Engineers, Jacksonville District
 Lake Okeechobee and Vicinity Report
 ** Preliminary Data - Subject to Revision **

Data Ending 2400 hours 09 AUG 2015

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	12.27	14.27	16.04 (Official Elv)
Bottom of High Lake Mngmt=	16.33	Top of Water Short Mngmt=	11.93
Currently in Operational Management Band			
Simulated Average LORS2008 [1965-2000]	12.83		
Difference from Average LORS2008	-0.56		
09AUG (1965-2007) Period of Record Average	13.89		
Difference from POR Average	-1.62		

Today Lake Okeechobee elevation is determined from the 4 Int & 4 Edge stations

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 6.21'
 ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 4.41'
 Bridge Clearance = 49.71'

4 Interior and 4 Edge Okeechobee Lake Average (Avg-Daily values):

L001	L005	L006	LZ40	S4	S352	S308	S133
12.14	12.34	12.30	12.23	12.31	12.44	12.19	12.23

*Combination Okeechobee Avg-Daily Lake Average = 12.27
 (*See Note)

Okeechobee Inflows (cfs):

S65E	1038	C5	0	Fisheating Cr	522
S154	0	S191	0	S135 Pumps	0
S84	0	S133 Pumps	-NR-	S2 Pumps	0
S84X	289	S127 Pumps	-NR-	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0		
Total Inflows:	1849				

Okeechobee Outflows (cfs):

S135 Culverts (Used)	-NR-	S354	0	S77	123
S127 Culverts (USED)	0	S351	0	S77Below	87 (NOT USED)

Flow Due to Lockages+ : 6
 Percent of flow from S308 NA %

Steele Point Top Salinity (mg/ml) ****
 Steele Point Bottom Salinity (mg/ml) ****

Speedy Point Top Salinity (mg/ml) ****
 Speedy Point Bottom Salinity (mg/ml) ****

+ Flow Due to lockages is computed utilizing average daily headwater and tailwater along with total number of lockages for the day to calculate a volume which is then converted to an average discharge in cfs.

					----- Wind ---	
Daily Precipitation Totals	1-Day	3-Day	7-Day	Direction		
Speed	(inches)	(inches)	(inches)	(Degø)		
(mph)						
S133 Pump Station:	0.02	0.26	0.26			
S193:	-NR-	0.00	0.00	-NR-	-NR-	
Okeechobee Field Station:	-NR-	0.00	0.00			
S135 Pump Station:	0.02	0.09	0.09			
S127 Pump Station:	0.20	0.68	0.68			
S129 Pump Station:	0.40	0.40	0.40			
S131 Pump Station:	0.33	0.34	0.42			
S77:	0.01	0.01	0.13	52	1	
S78:	0.06	0.50	0.73	305	2	
S79:	0.19	0.33	0.40	222	1	
S4 Pump Station:	-NR-	0.00	0.00			
Clewiston Field Station:	-NR-	0.00	0.00			
S3 Pump Station:	0.00	0.17	0.25			
S2 Pump Station:	0.00	0.10	0.10			
S308:	0.00	0.07	0.12	40	3	
S80:	0.00	0.00	0.38	26	0	
Okeechobee Average	0.11	0.16	0.19			
(Sites S78, S79 and S80 not included)						

Oke Nexrad Basin Avg	0.15	0.31	0.31			

Okeechobee Lake Elevations	09 AUG 2015	12.27	Difference from
	09AUG15		
09AUG15 -1 Day =	08 AUG 2015	12.28	0.01
09AUG15 -2 Days =	07 AUG 2015	12.29	0.02
09AUG15 -3 Days =	06 AUG 2015	12.29	0.02
09AUG15 -4 Days =	05 AUG 2015	12.29	0.02
09AUG15 -5 Days =	04 AUG 2015	12.29	0.02
09AUG15 -6 Days =	03 AUG 2015	12.28	0.01
09AUG15 -7 Days =	02 AUG 2015	12.25	-0.02
09AUG15 -30 Days =	10 JUL 2015	12.11	-0.16
09AUG15 -1 Year =	09 AUG 2014	14.27	2.00
09AUG15 -2 Year =	09 AUG 2013	16.04	3.77

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = -NR-

Lake Okeechobee Net Inflow (LONIN)

		Average Flow over the previous 14 days			Avg-Daily Flow
09AUG15	Today =	09 AUG 2015	2251	MON	-1822
09AUG15	-1 Day =	08 AUG 2015	3092	SUN	-1848
09AUG15	-2 Days =	07 AUG 2015	3805	SAT	314
09AUG15	-3 Days =	06 AUG 2015	4222	FRI	422
09AUG15	-4 Days =	05 AUG 2015	4485	THU	422
09AUG15	-5 Days =	04 AUG 2015	4518	WED	2296
09AUG15	-6 Days =	03 AUG 2015	4414	TUE	5900
09AUG15	-7 Days =	02 AUG 2015	4299	MON	4122
09AUG15	-8 Days =	01 AUG 2015	4314	SUN	10115
09AUG15	-9 Days =	31 JUL 2015	3866	SAT	2308
09AUG15	-10 Days =	30 JUL 2015	3803	FRI	4215
09AUG15	-11 Days =	29 JUL 2015	3500	THU	2316
09AUG15	-12 Days =	28 JUL 2015	3232	WED	432
09AUG15	-13 Days =	27 JUL 2015	2970	TUE	2319

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
09AUG15	Today=	09 AUG 2015	927	MON	1038
09AUG15	-1 Day =	08 AUG 2015	899	SUN	1076
09AUG15	-2 Days =	07 AUG 2015	868	SAT	1096
09AUG15	-3 Days =	06 AUG 2015	845	FRI	1090
09AUG15	-4 Days =	05 AUG 2015	811	THU	988
09AUG15	-5 Days =	04 AUG 2015	776	WED	1084
09AUG15	-6 Days =	03 AUG 2015	739	TUE	807
09AUG15	-7 Days =	02 AUG 2015	735	MON	1033
09AUG15	-8 Days =	01 AUG 2015	699	SUN	745
09AUG15	-9 Days =	31 JUL 2015	690	SAT	838
09AUG15	-10 Days =	30 JUL 2015	677	FRI	896
09AUG15	-11 Days =	29 JUL 2015	663	THU	717
09AUG15	-12 Days =	28 JUL 2015	674	WED	830
09AUG15	-13 Days =	27 JUL 2015	678	TUE	743

Lake Okeechobee Outlets Last 14 Days

DATE	S-77	S-77	Below S-77	S-78	S-78	S-79
	Discharge (0700-2100) (AC-FT)	Discharge (ALL DAY) (AC-FT)	Discharge (ALL-DAY) (AC-FT)	Discharge (0700-2100) (AC-FT)	Discharge (ALL DAY) (AC-FT)	Discharge (ALL DAY) (AC-FT)
09 AUG 2015	144	-NA-	172	0	13	1275
08 AUG 2015	135	-NA-	189	0	11	1189
07 AUG 2015	51	82	113	0	20	1546
06 AUG 2015	156	296	489	3	96	2069
05 AUG 2015	220	282	348	256	478	2205
04 AUG 2015	0	2	-39	351	605	3105
03 AUG 2015	0	2	-144	346	599	3075
02 AUG 2015	0	2	-122	344	588	3553

01 AUG 2015	0	3	-149	352	763	3389
31 JUL 2015	0	1	-34	537	1013	3748
30 JUL 2015	0	1	-74590	269	491	3655
29 JUL 2015	0	70	-62735	132	465	4500
28 JUL 2015	86	-NA-	54	447	1063	3574
27 JUL 2015	0	1	-134	527	1156	7442

	S-310	S-351	S-352	S-354	L8 Canal Pt
	Discharge	Discharge	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
09 AUG 2015	297	0	0	0	45
08 AUG 2015	200	0	0	0	-85
07 AUG 2015	110	0	543	0	-244
06 AUG 2015	125	0	543	0	-373
05 AUG 2015	59	0	559	0	-474
04 AUG 2015	-114	0	654	0	-566
03 AUG 2015	-277	0	3	0	-419
02 AUG 2015	-102	0	375	0	-437
01 AUG 2015	-23	0	763	0	-497
31 JUL 2015	-123	0	777	0	-387
30 JUL 2015	-296	0	759	0	-385
29 JUL 2015	-175	0	724	0	-337
28 JUL 2015	-407	73	670	0	-369
27 JUL 2015	-338	230	569	0	-409

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
09 AUG 2015	-5	225	11
08 AUG 2015	-3	-128	19
07 AUG 2015	-6	-212	38
06 AUG 2015	-5	-31	19
05 AUG 2015	-3	-92	34
04 AUG 2015	-3	159	34
03 AUG 2015	-2	-106	7
02 AUG 2015	-2	-39	43
01 AUG 2015	-1	-85	21
31 JUL 2015	-0	-11	20
30 JUL 2015	-0	-188	13
29 JUL 2015	-0	-319	30
28 JUL 2015	-0	-389	24
27 JUL 2015	-0	-294	10

*** NOTE: 1) Discharge from (0700-2100) is computed using Spillway and Sector

Gate Discharges from 0700 hrs to 2100 hrs.

and 2) Discharge (ALL DAY) is computed using Spillway, Sector Gate

and Lockages Discharges from 0015 hrs to 2400 hrs.

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(I) - Flows preceded by "I" signify an instantaneous flow computed from the single value reported for the day

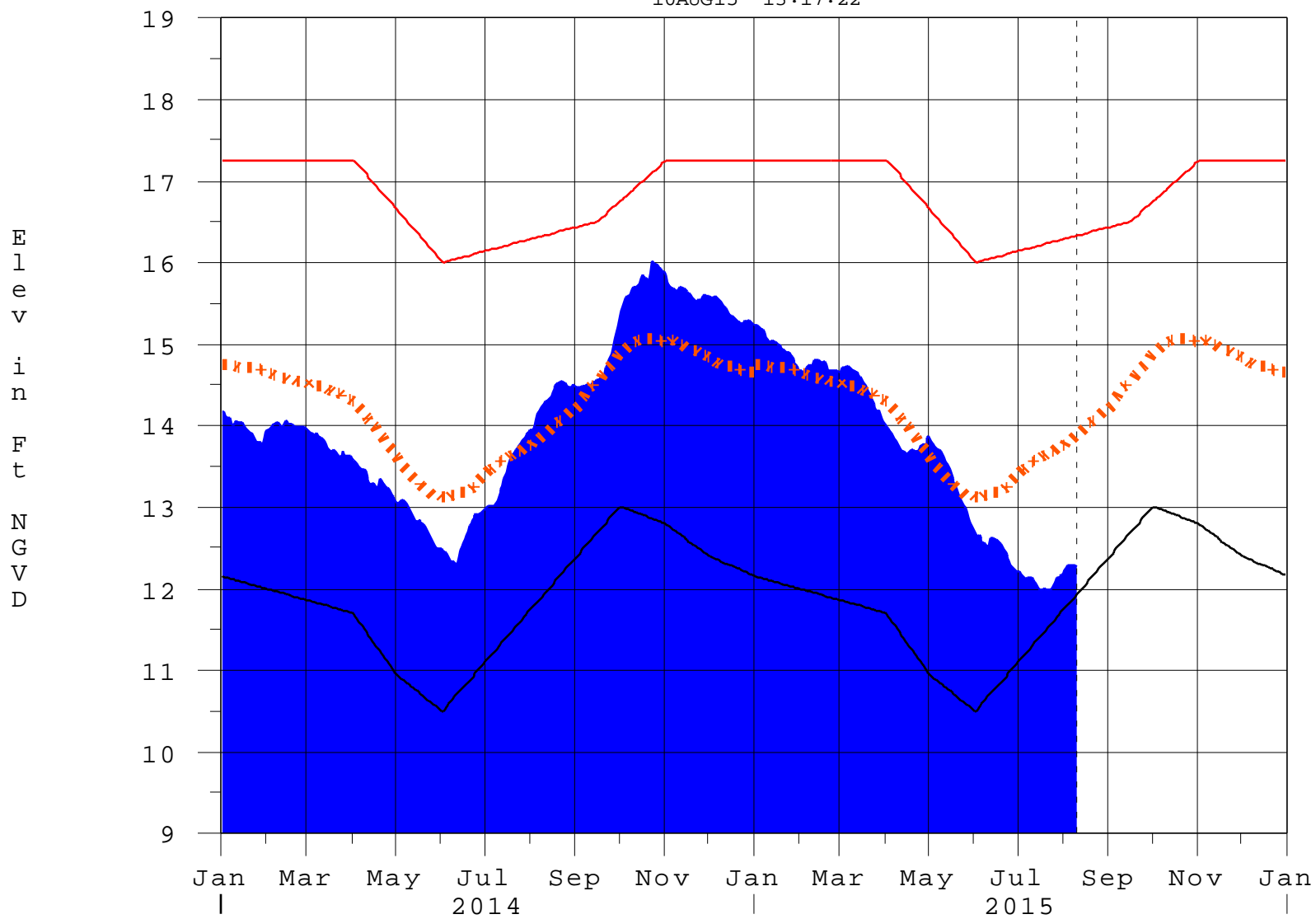
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* On 11 May 1999, Lake Okeechobee Elevation was switched from Instantaneous 2400 value to an average-daily lake average.
On 14 Mar 2001, due to the isolation of various gages within the standard
10 stations, the average of the interior 4 station gages was used as the Lake Okeechobee Elevation.
On 05 November 2010, Lake Okeechobee Elevation was switched to a 9 gage mix of interior and edge gages to obtain a more reliable representation of the lake level.
On 09 May 2011, Lake Okeechobee Elevation was switched to a 8 gage mix of interior and edge gages to obtain a more reliable representation of the lake level due to isolation of S135 from low lake levels.
Today Lake Okechobee elevation is determined from the 4 Int & 4 Edge stations
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>
\$ For information regarding Lake Okeechobee Service Area water restrictions
please refer to www.sfwmd.gov

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Report Generated 10AUG2015 @ 13:15 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

10AUG15 13:17:22



- High Lake Management
- Okeechobee Avg Elev
- Average Elev [1965-2007]
- Water Shortage Management

Classification Tables

Supplemental Tables used in conjunction with the LORS2008 Release

Guidance Flow Charts

- [Class Limits for Tributary Hydrologic Conditions](#)

Table K-2 in the Lake Okeechobee Water Control Plan

- [6-15 Day Precipitation Outlook Categories](#)

Table ?? in the Lake Okeechobee Water Control Plan

- [Classification of Lake Okeechobee Net Inflow for Seasonal Outlook](#)

Table K-3 in the Lake Okeechobee Water Control Plan

- [Classification of Lake Okeechobee Net Inflow for Multi-Seasonal Outlook](#)

Table K-4 in the Lake Okeechobee Water Control Plan

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Tributary Hydrologic Classification*	Palmer Index Class Limits	2-wk Mean L.O. Net Inflow Class Limits
Very Wet	3.0 or greater	Greater \geq 6000 cfs
Wet	1.5 to 2.99	2500 - 5999 cfs
Near Normal	-1.49 to 1.49	500 - 2499 cfs
Dry	-2.99 to -1.5	-5000 – 500 cfs
Very Dry	-3.0 or less	Less than -5000 cfs

* use the wettest of the two indicators

Classification of Lake Okeechobee Net Inflow Seasonal Outlook*

Lake Net Inflow Prediction [million acre-feet]	Equivalent Depth** [feet]	Lake Okeechobee Net Inflow Seasonal Outlook
> 0.93	> 2.0	Very Wet
0.71 to 0.93	1.51 to 2.0	Wet
0.35 to 0.70	0.75 to 1.5	Normal
< 0.35	< 0.75	Dry

****Volume-depth conversion based on average lake surface area of 467,000 acres**

Classification of Lake Okeechobee Net Inflow Multi-Seasonal Outlook*

Lake Net Inflow Prediction [million acre-feet]	Equivalent Depth** [feet]	Lake Okeechobee Net Inflow Multi-Seasonal Outlook
> 2.0	> 4.3	Very Wet
1.18 to 2.0	2.51 to 4.3	Wet
0.5 to 1.17	1.1 to 2.5	Normal
< 0.5	< 1.1	Dry

****Volume-depth conversion based on average lake surface area of 467,000 acres**

6-15 Day Precipitation Outlook Categories*

6-15 Day Precipitation Outlook Categories	WSE Decision Tree Categories
Above Normal	Wet to Very Wet
Normal	Normal
Below Normal	Dry

* Corresponds to Table 7-6 in the Lake Okeechobee Water Control Plan

Under Construction